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TRANSMITTAL FORM

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Total Number of Pages in This Submission: 36

Application Number	10/662,020
Filing Date	September 11, 2003
First Named Inventor	Gregory Shirin, et al.
Art Unit	2162
Examiner Name	Dennis Y. Myint
Attorney Docket Number	15437-0578

ENCLOSURES (Check all that apply)

- ☒ Fee Transmittal Form
- ☒ Fee Attached
- ☐ Amendment/Reply
- ☐ After Final
- ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
- ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation
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- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Other Enclosure(s) (please Identify below): Remarks
  Appeal Brief (34 pgs)

Remarks

The Director is hereby authorized to charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 to Deposit Account Number **50-1302**
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Hickman Palermo Truong & Becker LLP		
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Printed name	Bobby K. Truong		
Date	November 21, 2006	Reg. No.	37,499

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FEE TRANSMITTAL For FY 2005

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☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($) 500.00

Complete if Known	
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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 20 or HP =	_____ x	_____ =	_____

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 3 or HP =	_____ x	_____ =	_____

HP = highest number of independent claims paid for, if greater than 3

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)
_____	_____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fees Paid ($)
_____ - 100 =	_____ / 50 =	_____ (round up to a whole number) x	_____ =	_____

4. OTHER FEE(S)

Non-English Specification, $130 fee (no small entity discount)

Other (e.g., late filing surcharge) Appeal Brief

Fees Paid ($) $500.00

SUBMITTED BY

Signature		Registration No. 37,499 (Attorney/Agent)	Telephone 408-414-1234
Name (Print/Type)	Bobby K. Truong		Date November 21, 2006

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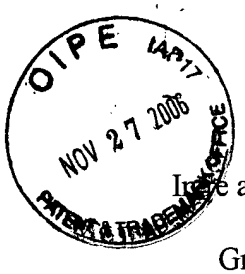
15437-0578/030057



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of: Confirmation No. 8580

Gregory Shirin, et al. Group Art Unit No.: 2162

Serial No.: 10/662,020 Examiner: Dennis Y. Myint

Filed: September 11, 2003

For: MECHANISM FOR AUTOMATICALLY ESTABLISHING A RESOURCE GRID

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed on October 5, 2006.

I. REAL PARTY IN INTEREST

Sun Microsystems, Inc. is the real party in interest.

II. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals or interferences.

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III. STATUS OF CLAIMS

Claims 1, 3-14, 16-27, and 29-39 are pending in the application and were finally rejected in the Final Office Action mailed on July 31, 2006. Claims 2, 15, and 28 were canceled during prosecution.

Claims 1, 3-14, 16-27, and 29-39 are the subject of this appeal.

IV. STATUS OF AMENDMENTS

No amendments were filed after the Final Office Action mailed on July 31, 2006.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present application contains independent claims 1, 4, 14, 17, 27, and 30. Claims 1 and 4 are method claims. Claims 14 and 17 are apparatus claims, with claim 14 being an apparatus counterpart of method claim 1 and claim 17 being an apparatus counterpart of method claim 4. Claims 27 and 30 are computer readable medium claims, with claim 14 being a computer readable medium counterpart of method claim 1 and claim 30 being a computer readable medium counterpart of method claim 4.

In many computer system implementations, it is desirable to configure a plurality of nodes to behave as a resource grid. Doing so makes it possible for the individual nodes to contribute their resource or resources to a resource pool. Once the resource grid is set up, the resources in the resource pool may be called upon by external components.

Typically, a resource grid comprises a plurality of slave nodes and one or more master nodes. The slave nodes are the nodes that provide the resources, while the master node acts as the interface between the slave nodes and the external components. In fulfilling its role as an interface, a master node receives resource requests from external components.

In response to a resource request, the master node determines which of the slave nodes to call upon to fulfill the request. Once a slave node is chosen, the master node forwards the resource request to the slave node for processing. In this manner, the master node coordinates use of the slave nodes, and acts as an access point for external components to access the resources provided by the slave nodes in the resource grid. Because the master node acts as an access point, the external components are shielded from the underlying structure and complexity of the resource grid. Thus, from the point of view of the external components, the resource grid appears as a single pool of resources accessible through the master node.

Prior to the invention, the process of establishing a resource grid was quite labor and time intensive from the standpoint of a system administrator. Specifically, the administrator had to perform a number of manual tasks on each node of a resource grid to enable that node to function as part of the resource grid. These manual tasks included, for example, manually accessing each node, loading grid participation software into each node, configuring and running the grid participation software, and setting a node to be a slave node, a master node, or both. These manual tasks required a significant amount of time to perform, and since they had to be performed on every node, the amount of administrator time required to set up an entire resource grid was substantial, especially if the resource grid comprised a large number of nodes.

To ease the burden on the administrator, claim 1 provides a method for automatically establishing a resource grid. According to claim 1, a grid establishment component (GEC) determines, from a plurality of nodes, a set of grid nodes to include in a resource grid (see, for example, paragraphs 0018, 0046, 0047, Fig. 1, block 104). Each grid node has a grid

facilitation agent operating thereon (see, for example, paragraph 0045, Figs. 4A and 4B, element 410). Once the grid nodes are determined, the GEC establishes the resource grid (see, for example, paragraph 0019, Fig. 1, block 108). According to claim 1, establishing the resource grid comprises configuring each grid node to enable that grid node to participate as part of the resource grid (see, for example, paragraphs 0019, 0048, Fig. 1, block 112), and establishing one or more grid masters to manage access to the resources provided by the grid nodes, such that the resource grid formed by the grid nodes behaves as a single pool of resources accessible through the one or more grid masters (see, for example, paragraphs 0019, 0053, 0054, Fig. 1, block 116). To configure a grid node to enable it to participate as part of the resource grid, the GEC deploys a grid participation module (GPM) to the grid facilitation agent operating on the grid node (see, for example, paragraphs 0049, 0050, Fig. 4b, element 412). The GEC then instructs the grid facilitation agent to run the grid participation module on the grid node (see, for example, paragraphs 0049, 0050, Fig. 4b, elements 410 and 412). Once that is done, the grid node is enabled to participate as part of the resource grid. By performing the operations set forth above, the GEC automates the process of establishing a resource grid. This in turn removes a significant burden from a system administrator, and greatly simplifies and accelerates the grid establishment process.

Independent claim 14 is an apparatus counterpart of method claim 1, and includes limitations analogous to the limitations of claim 1. Thus, the elements of claim 14 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with claim 1. In addition, the elements of claim 14 are supported by the hardware description provided in paragraphs 0055 through 0064.

Independent claim 27 is a computer readable medium counterpart of method claim 1, and includes limitations analogous to the limitations of claim 1. Thus, the elements of claim 27 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with claim 1. In addition, the elements of claim 27 are supported by the hardware and computer readable medium description provided in paragraphs 0055 through 0064.

Claim 4 sets forth a method that is similar to the method of claim 1 except that in the method of claim 4, the grid nodes do not initially have a grid facilitation agent operating thereon. According to claim 4, the GEC determines, from a plurality of nodes, a set of grid nodes to include in a resource grid (see, for example, paragraphs 0018, 0023, 0024, 0035, 0036, Fig. 1, block 104). Once the grid nodes are determined, the GEC establishes the resource grid (see, for example, paragraph 0019, Fig. 1, block 108). According to claim 4, establishing the resource grid comprises configuring each grid node to enable that grid node to participate as part of the resource grid (see, for example, paragraphs 0019, 0025, 0037 Fig. 1, block 112), and establishing one or more grid masters to manage access to the resources provided by the grid nodes, such that the resource grid formed by the grid nodes behaves as a single pool of resources accessible through the one or more grid masters (see, for example, paragraphs 0019, 0032, 0033, 0043, 0044, Fig. 1, block 116). To configure a grid node to enable it to participate as part of the resource grid, the GEC first causes the grid node to execute a grid facilitation agent (see, for example, paragraphs 0026, 0038, Fig. 2B, element 210, Fig. 3B, element 310). The GEC then deploys a grid participation module (GPM) to the grid facilitation agent executing on the grid node (see, for example, paragraphs 0028, 0029, 0039, 0040, Fig. 2C, element 212, Fig. 3C, element 312), and instructs the grid facilitation

agent to run the grid participation module on the grid node (see, for example, paragraphs 0028, 0029, 0039, 0040, Fig. 2C, elements 210 and 212, Fig. 3C, elements 310 and 312). Once that is done, the grid node is enabled to participate as part of the resource grid. As with the method of claim 1, by performing the operations set forth above, the GEC automates the process of establishing a resource grid, which in turn removes a significant burden from a system administrator, and greatly simplifies and accelerates the grid establishment process.

Independent claim 17 is an apparatus counterpart of method claim 4, and includes limitations analogous to the limitations of claim 4. Thus, the elements of claim 17 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with claim 4. In addition, the elements of claim 17 are supported by the hardware description provided in paragraphs 0055 through 0064.

Independent claim 30 is a computer readable medium counterpart of method claim 4, and includes limitations analogous to the limitations of claim 4. Thus, the elements of claim 30 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with claim 4. In addition, the elements of claim 30 are supported by the hardware and computer readable medium description provided in paragraphs 0055 through 0064.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 1, 3, 10-13, 14, 16, 23-26, 27, 29, and 36-39 are unpatentable under 35 U.S.C. §103(a) over Aziz et al. (U.S. Patent Application Publication Number 2003/0126265) in view of Clarke Jr. et al. (U.S. Patent Application Publication Number 2004/0221038).

2. Whether claims 4-9, 17-22, and 30-35 are unpatentable under 35 U.S.C. §103(a) over Aziz et al. (U.S. Patent Application Publication Number 2003/0126265) in view of Clarke Jr. et al. (U.S. Patent Application Publication Number 2004/0221038).

VII. ARGUMENTS

A. The Examiner Has Erred in Rejecting Claims 1, 3, 10-13, 14, 16, 23-26, 27, 29, and 36-39 under 35 U.S.C. §103(a)

Claim 1

In paragraph 6 of the Final Office Action mailed on July 31, 2006 (hereinafter, the Final Office Action), the Examiner rejected claim 1 under 35 U.S.C. §103(a) as being unpatentable over Aziz et al. (U.S. Patent Application Publication Number 2003/0126265, hereinafter, Aziz) in view of Clarke Jr. et al. (U.S. Patent Application Publication Number 2004/0221038, hereinafter, Clarke). In order for a rejection under 35 U.S.C. §103(a) to be proper, the applied references, when properly combined, must show each and every limitation of a claim. The Examiner has failed to meet this requirement. Specifically, even when combined (assuming for the sake of argument that it would have been obvious to combine the references) Aziz and Clarke do not show each and every limitation of claim 1. Thus, for at least this reason, Appellants submit that the rejection of claim 1 is improper. Accordingly, Appellants request that this rejection be reversed.

Claim 1 recites:

A method, comprising:
determining, by a grid establishment component, from a plurality of nodes, a set of grid nodes to include in a resource grid, wherein each grid node provides zero

or more resources, and wherein each grid node has a grid facilitation agent operating thereon; and

establishing, by the grid establishment component, the resource grid, wherein establishing comprises:

configuring each grid node to enable that grid node to participate as part of the resource grid, wherein configuring a grid node to enable that grid node to participate as part of the resource grid comprises:

deploying a grid participation module to the grid facilitation agent operating on the grid node, and

instructing the grid facilitation agent to run the grid participation module on the grid node to enable the grid node to participate as part of the resource grid, and

establishing one or more grid masters to manage access to the resources provided by the grid nodes, such that the resource grid formed by the grid nodes behaves as a single pool of resources accessible through the one or more grid masters. (Emphasis added)

Claim 1 provides an advantageous method for automatically establishing a resource grid. According to claim 1, a grid establishment component (GEC) determines, from a plurality of nodes, a set of grid nodes to include in a resource grid. Each grid node has a grid facilitation agent operating thereon. Once the GEC has determined the grid nodes, the GEC proceeds to establish the resource grid. The GEC does so by configuring each grid node to enable that grid node to participate as part of the resource grid. The GEC configures a grid node by deploying a grid participation module (GPM) to the grid facilitation agent operating on the grid node, and then instructing the grid facilitation agent to run the grid participation module on the grid node. Once that is done, the grid node is enabled to participate as part of the resource grid. In addition to configuring the grid nodes, the GEC further establishes one or more grid masters to manage access to the resources provided by the grid nodes, such that the resource grid formed by the grid nodes behaves as a single pool of resources accessible through the one or more grid masters. Once that is done, the grid nodes and the grid master(s) can cooperate to behave as a resource grid. By performing the operations set forth in claim 1, the GEC automates the process of establishing a resource grid. This serves to

remove a significant burden from a system administrator, and greatly simplifies and accelerates the grid establishment process.

Such a method is neither disclosed nor suggested by Aziz. Instead, Aziz teaches a method for logically partitioning various components of a system into virtual server farms. Specifically, Aziz discloses a system in which a plurality of computing elements (e.g. CPU's) and storages (e.g. disks) are interconnected by a plurality of virtual local area network (VLAN) switches and storage area network (SAN) switches (see Fig. 2, and paragraphs 0058 and 0059). The VLAN switches are capable of being configured to implement multiple VLAN's (see paragraph 0059). By implementing multiple VLAN's, and by selectively including certain computing elements in certain VLAN's, the VLAN switches can communicatively segregate the computing elements into subsets referred to in Aziz as virtual server farms (VSF's) (see paragraph 0061). Only the components within the same VSF can communicate and interact with each other (see paragraphs 0063 and 0064). Thus, by segregating the components in this manner, the VLAN switches can logically partition the system into multiple VSF's (see paragraph 0064). Since each VSF is communicatively isolated from other VSF's, each VSF behaves like a separate computer system. Thus, with multiple VSF's, the system can behave like multiple separate computer systems.

In Aziz, the configuration of the VLAN switches is controlled by a control plane (see paragraph 0071). By properly configuring the VLAN switches, the control plane can control the internal topology of, and hence, define a VSF (see paragraphs 0055 and 0071). In addition to defining VSF's, the control plane also causes a VSF to start operation. To do so, the control plane causes the computing elements in a VSF to boot from a certain section of storage (referred to as a SAN zone) (see paragraph 0071). This SAN zone has a pre-defined

logical blueprint which defines a boot image (see paragraph 0072). This boot image includes the software (e.g. operating system, applications (e.g. web server), etc.) that the computing elements in a VSF will need to execute in order to perform a role (see paragraph 0075). When the computing elements of a VSF boot from the boot image, they will execute all of the software in the boot image, and hence, will perform all of the functions needed to perform a defined role. In this manner, each of the computing elements in a VSF is brought up for operation, and caused to operate as part of a VSF.

Several points should be noted with regard to Aziz. First of all, note that unlike the grid nodes of claim 1, none of the computing elements (which the Examiner appears to be interpreting to be a node) in a VSF have a grid facilitation agent operating thereon. Before booting, the computing elements are executing nothing. After booting, they execute the software in the boot image. Paragraph 0075 of Aziz provides some examples of the boot image software (e.g. web server, database server, load balancer, firewall, operating systems). None of this software can be reasonably interpreted to be a grid facilitation agent that is called upon during grid establishment time to help with the grid establishment process. There is no mention in Aziz of having the computing elements execute any software than can be reasonably interpreted to be a grid facilitation agent. Thus, this aspect of claim 1 is clearly not shown by Aziz.

Also, unlike claim 1, there is nothing in Aziz that discloses deploying a grid participation module to a grid facilitation agent, and instructing the grid facilitation agent to run the grid participation module on a grid node to enable the grid node to participate as part of a resource grid. Since Aziz does not disclose operating a grid facilitation agent on a grid node, it should come as no surprise that Aziz also does not disclose deploying a grid

participation module to a grid facilitation agent, and instructing the grid facilitation agent to run the grid participation module. Overall, Aziz takes a very different approach than that recited in claim 1. Whereas claim 1 configures a grid node by deploying a grid participation module to a grid facilitation agent that is already operating on a grid node, and then instructing the grid facilitation agent to run the grid participation module, Aziz configures a computing element by simply having that computing element execute a certain boot image, which contains all of the software that the computing element will need to execute. Because of this difference in approach, the method of claim 1 includes aspects and performs operations that are not in Aziz. Put another way, Aziz does not perform and does not disclose many of the aspects that are recited in claim 1.

In the Final Office Action, the Examiner acknowledged these shortcomings of Aziz. Specifically, on page 4 of the Final Office Action, the Examiner admitted:

> Aziz does not explicitly teach the limitations: "wherein each grid node has a facilitating agent operating thereon" and "wherein configuring a grid node to enable that node to participate as part of the resource grid comprises: deploying a grid participation module to the grid facilitation agent operating on the grid node; and instructing the grid participation agent to run the grid participation module on the grid node to enable the grid node to participate as part of the resource grid".

The Examiner tried to fill in these voids by applying Clarke. Specifically, the Examiner cited paragraph 0049 of Clarke, and contended that this paragraph shows all of the subject matter of claim 1 that is not disclosed in Aziz. Appellants strongly disagree with this contention.

Paragraph 0049 of Clarke states:

> In one embodiment of the invention, for example, monitoring tools are deployed on potential grid resources to monitor application-level and server-level usage information such as: maximum, and minimum utilization, patterns of application demand, amount of available and required disk, memory, network bandwidth, etc. Tools may be non-invasive, especially for those resources not part of any distributed

> computing environment, or they may be invasive e.g., requiring installation of an agent on an IT resource. In one embodiment, the monitoring tools are used to post-process log files.

Apparently, the Examiner is interpreting the agent of Clarke to be the grid facilitation agent of claim 1, and the monitoring tools of Clarke to be the grid participation module of claim 1. Appellants disagree with this interpretation.

First of all, the agent of Clarke cannot in any way be reasonably interpreted to be the grid facilitation agent of claim 1. The sole purpose of the agent of Clarke is to enable the monitoring tools to be run on a grid resource. Unlike the grid facilitation agent of claim 1, Clarke's agent does not interact with any grid establishment component that is establishing a resource grid, and it does not participate in any way in the grid establishment process. Clarke's agent certainly does not receive any instructions during grid establishment time to run a grid participation module on a grid node to enable that grid node to participate as part of a resource grid. Thus, Clarke's agent does not in any way "facilitate" establishment of a resource grid.

Also, the monitoring tools of Clarke cannot be reasonably interpreted to be the grid participation module of claim 1. The purpose of the monitoring tools is simply to monitor the operation of the resource on which the monitoring tools are located. As spelled out in paragraph 0049, the monitoring tools monitor application-level and server-level usage information such as: maximum, and minimum utilization, patterns of application demand, amount of available and required disk, memory, network bandwidth, etc. The monitoring tools are also used to post-process log files. These are not grid participation functions. There is nothing in Clarke that discloses that the monitoring tools are in any way aware of a resource grid. There is also nothing in Clarke that discloses that the monitoring tools are run

as part of a resource grid establishment process. Further, there is nothing in Clarke that discloses that execution of the monitoring tools enables a grid node to participate as part of a resource grid. Overall, the monitoring tools of Clarke serve very specific functions and these functions have nothing to do whatsoever with enabling a grid node to participate as part of a resource grid. Thus, the monitoring tools of Clarke cannot be reasonably interpreted to be the grid participation module of claim 1.

Because the agent and the monitoring tools of Clarke cannot be reasonably interpreted to be the grid facilitation agent and the grid participation module of claim 1, Clarke does not disclose the elements of claim 1 that the Examiner contends that it discloses. Specifically, Clarke does not disclose a grid facilitation agent operating on each grid node. Clarke also does not disclose configuring a grid node (during a resource grid establishment process) by deploying a grid participation module to a grid facilitation agent operating on a grid node, and instructing the grid facilitation agent to run the grid participation module on the grid node to enable the grid node to participate as part of a resource grid. Thus, Clarke has at least the same shortcomings as Aziz.

As demonstrated above, neither reference discloses at least the following aspects of claim 1: (1) wherein each grid node has a grid facilitation agent operating thereon; and (2) wherein configuring a grid node to enable that grid node to participate as part of a resource grid comprises: deploying a grid participation module to the grid facilitation agent operating on the grid node, and instructing the grid facilitation agent to run the grid participation module on the grid node to enable the grid node to participate as part of the resource grid. Since neither reference discloses these aspects, then even if the references are combined (assuming for the sake of argument that it would have been obvious to combine the

references), the combination would still not disclose every limitation of claim 1. That being the case, claim 1 cannot be properly rejected under 35 U.S.C. §103(a) based on these references. For at least this reason, Appellants request that this rejection of claim 1 be reversed.

For at least the same reason as that given above in connection with claim 1, Appellants request that the rejection of claims 3, 10-13, 14, 16, 23-26, 27, 29, and 36-39 also be reversed.

B. The Examiner Has Erred in Rejecting Claims 4-9, 17-22, and 30-35 under 35 U.S.C. §103(a)

Claim 4

In paragraph 6 of the Final Office Action, the Examiner rejected claim 4 under 35 U.S.C. §103(a) as being unpatentable over Aziz in view of Clarke. In order for a rejection under 35 U.S.C. §103(a) to be proper, the applied references, when properly combined, must show each and every limitation of a claim. The Examiner has failed to meet this requirement. Specifically, even when combined (assuming for the sake of argument that it would have been obvious to combine the references) Aziz and Clarke do not show each and every limitation of claim 4. Thus, for at least this reason, Appellants submit that the rejection of claim 4 is improper. Accordingly, Appellants request that this rejection be reversed.

Claim 4 recites:

> A method, comprising:
> determining, by a grid establishment component, from a plurality of nodes, a set of grid nodes to include in a resource grid, wherein each grid node provides zero or more resources;

establishing, by the grid establishment component, the resource grid, wherein establishing comprises:
configuring each grid node to enable that grid node to participate as part of the resource grid, wherein configuring a grid node to enable that grid node to participate as part of the resource grid comprises:
causing the grid node to execute a grid facilitation agent thereon;
deploying a grid participation module to the grid facilitation agent executing on the grid node; and
instructing the grid facilitation agent to run the grid participation module on the grid node to enable the grid node to participate as part of the resource grid; and
establishing one or more grid masters to manage access to the resources provided by the grid nodes, such that the resource grid formed by the grid nodes behaves as a single pool of resources accessible through the one or more grid masters. (Emphasis added)

The method of claim 4 is similar in substance to the method of claim 1, except that in claim 4, the grid nodes do not initially have a grid facilitation agent operating thereon. Because a grid facilitation agent is not initially operating on each grid node, the process of configuring a grid node to enable that grid node to participate as part of a resource grid comprises an addition operation of causing a grid node to execute a grid facilitation agent thereon.

Claim 4 provides an advantageous method for automatically establishing a resource grid. According to claim 4, a grid establishment component (GEC) determines, from a plurality of nodes, a set of grid nodes to include in a resource grid. Once the GEC has determined the grid nodes, the GEC proceeds to establish the resource grid. The GEC does so by configuring each grid node to enable that grid node to participate as part of the resource grid. The GEC configures a grid node by first causing that grid node to execute a grid facilitation agent thereon. The GEC then deploys a grid participation module (GPM) to the grid facilitation agent operating on the grid node, and instructs the grid facilitation agent to run the grid participation module on the grid node. Once that is done, the grid node is

enabled to participate as part of the resource grid. In addition to configuring the grid nodes, the GEC further establishes one or more grid masters to manage access to the resources provided by the grid nodes, such that the resource grid formed by the grid nodes behaves as a single pool of resources accessible through the one or more grid masters. Once that is done, the grid nodes and the grid master(s) can cooperate to behave as a resource grid. By performing the operations set forth in claim 4, the GEC automates the process of establishing a resource grid. This serves to remove a significant burden from a system administrator, and greatly simplifies and accelerates the grid establishment process.

Such a method is neither disclosed nor suggested by Aziz. As argued above in connection with claim 1, in Aziz, none of the computing elements (which the Examiner appears to be interpreting to be a node) in a VSF has a grid facilitation agent operating thereon. That being the case, it logically follows then that Aziz does not cause any of the computing elements to execute a grid facilitation agent. Thus, this aspect of claim 4 is clearly not shown by Aziz.

Also, as argued above in connection with claim 1, there is nothing in Aziz that discloses deploying a grid participation module to a grid facilitation agent, and instructing the grid facilitation agent to run the grid participation module on a grid node to enable the grid node to participate as part of a resource grid. Thus, these aspects of claim 4 are also not disclosed in Aziz.

In the Final Office Action, the Examiner contended that these aspects are disclosed by Aziz. Specifically, on page 7 of the Final Office Action, the Examiner alleged that the "causing", "deploying", and "instructing" limitations of claim 4 are disclosed in paragraphs 0061, 0062, 0071, and 0072 of Aziz. This is rather confusing because it clearly contradicts

the admission made by the Examiner on page 5 of the same Final Office Action, in which the Examiner stated:

> Aziz does not explicitly teach the limitations: "wherein each grid node has a facilitating agent operating thereon" and "wherein configuring a grid node to enable that node to participate as part of the resource grid comprises: deploying a grid participation module to the grid facilitation agent operating on the grid node; and instructing the grid participation agent to run the grid participation module on the grid node to enable the grid node to participate as part of the resource grid".

Granted, on page 5, the Examiner was discussing claim 1 whereas on page 7, the Examiner was referring to claim 4. Nonetheless, the "deploying" and "instructing" limitations of the two claims are almost substantively identical so there is no reason why Aziz would fail to teach those limitations in one claim but not the other. It appears that the Examiner may have inadvertently copied the rationale given for rejecting claim 4 in a prior Office Action into the Final Office Action. Since the Examiner's admission was made in a later issued Final Office Action, Appellants assume that that is the most recent and hence the current position of the Examiner. Hence, Appellants are acting under the assumption that the Examiner has acknowledged that the "causing", "deploying", and "instructing" limitations of claim 4 are not disclosed in Aziz (the "causing" limitation is assumed to not be disclosed by Aziz because the Examiner has admitted that Aziz does not disclose "wherein each grid node has a facilitating agent operating thereon", and if that is the case, then it logically follows that Aziz also does not disclose causing a computing element to execute a grid facilitation agent).

Given that the Examiner has admitted that the above aspects of claim 4 are not taught by Aziz, then the Examiner must have applied Clarke to fill in the voids left by Aziz. In applying Clarke, the Examiner specifically cited paragraph 0049 of Clarke. This paragraph states:

> In one embodiment of the invention, for example, monitoring tools are deployed on potential grid resources to monitor application-level and server-level usage information such as: maximum, and minimum utilization, patterns of application demand, amount of available and required disk, memory, network bandwidth, etc. Tools may be non-invasive, especially for those resources not part of any distributed computing environment, or they may be invasive e.g., requiring installation of an agent on an IT resource. In one embodiment, the monitoring tools are used to post-process log files.

Apparently, the Examiner is interpreting the agent of Clarke to be the grid facilitation agent of claim 4, and the monitoring tools of Clarke to be the grid participation module of claim 4. As argued above in connection with claim 1, the agent of Clarke cannot be reasonably interpreted to be the grid facilitation agent of claim 4, and the monitoring tools of Clarke cannot be reasonably interpreted to be the grid participation module of claim 4. That being the case, Clarke does not disclose various aspects of claim 4. Specifically, Clarke does not disclose configuring a grid node (during a resource grid establishment process) by causing the grid node to execute a grid facilitation agent thereon, by deploying a grid participation module to the grid facilitation agent operating on the grid node, and by instructing the grid facilitation agent to run the grid participation module on the grid node to enable the grid node to participate as part of a resource grid. Thus, Clarke has at least the same shortcomings as Aziz.

As demonstrated above, neither reference discloses at least the following aspects of claim 4: wherein configuring a grid node to enable that grid node to participate as part of a resource grid comprises: causing the grid node to execute a grid facilitation agent thereon, deploying a grid participation module to the grid facilitation agent operating on the grid node, and instructing the grid facilitation agent to run the grid participation module on the grid node to enable the grid node to participate as part of the resource grid. Since neither reference discloses these aspects, then even if the references are combined (assuming for the sake of

argument that it would have been obvious to combine the references), the combination would still not disclose every limitation of claim 4. That being the case, claim 4 cannot be properly rejected under 35 U.S.C. §103(a) based on these references. For at least this reason, Appellants request that this rejection of claim 4 be reversed.

For at least the same reason as that given above in connection with claim 4, Appellants request that the rejection of claims 5-9, 17-22, and 30-35 also be reversed.

VIII. CONCLUSION AND PRAYER FOR RELIEF

Based on the foregoing, it is respectfully submitted that the rejection of claims 1, 3-14, 16-27, and 29-39 under 35 U.S.C. §103(a) as being unpatentable over Aziz in view of Clarke lacks the requisite factual and legal bases. Appellants therefore respectfully request that the Honorable Board reverse the rejection of claims 1, 3-14, 16-27, and 29-39 under 35 U.S.C. §103(a).

Respectfully submitted,

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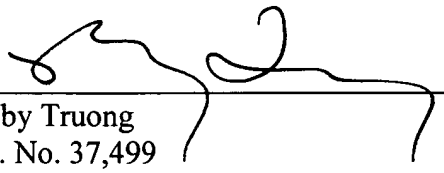

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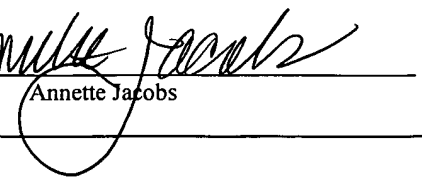
on November 21, 2006 by 
Annette Jacobs

APPENDIX A -- CLAIMS APPENDIX

1. (Previously presented) A method, comprising:

determining, by a grid establishment component, from a plurality of nodes, a set of grid nodes to include in a resource grid, wherein each grid node provides zero or more resources, and wherein each grid node has a grid facilitation agent operating thereon; and

establishing, by the grid establishment component, the resource grid, wherein establishing comprises:

configuring each grid node to enable that grid node to participate as part of the resource grid, wherein configuring a grid node to enable that grid node to participate as part of the resource grid comprises:

deploying a grid participation module to the grid facilitation agent operating on the grid node, and

instructing the grid facilitation agent to run the grid participation module on the grid node to enable the grid node to participate as part of the resource grid; and

establishing one or more grid masters to manage access to the resources provided by the grid nodes, such that the resource grid formed by the grid nodes behaves as a single pool of resources accessible through the one or more grid masters.

2. Canceled

3. (Previously presented) The method of claim 1 , wherein determining the set of grid nodes comprises:

determining which of the plurality of nodes has a grid facilitation agent operating thereon; and

selecting those nodes as the grid nodes.

4. (Previously presented) A method, comprising:

determining, by a grid establishment component, from a plurality of nodes, a set of grid nodes to include in a resource grid, wherein each grid node provides zero or more resources;

establishing, by the grid establishment component, the resource grid, wherein establishing comprises:

configuring each grid node to enable that grid node to participate as part of the resource grid, wherein configuring a grid node to enable that grid node to participate as part of the resource grid comprises:

causing the grid node to execute a grid facilitation agent thereon;

deploying a grid participation module to the grid facilitation agent executing on the grid node; and

instructing the grid facilitation agent to run the grid participation module on the grid node to enable the grid node to participate as part of the resource grid; and

establishing one or more grid masters to manage access to the resources provided by the grid nodes, such that the resource grid formed by the grid nodes behaves as a single pool of resources accessible through the one or more grid masters.

5. (Original) The method of claim 4, wherein causing the grid node to execute the grid facilitation agent comprises:

causing the grid node to reboot using an operating system image obtained from a component separate from the grid node, wherein the operating system image comprises the grid facilitation agent.

6. (Original) The method of claim 4, wherein causing the grid node to execute the grid facilitation agent comprises:

instructing the grid node, via a privileged port of the grid node, to reboot using an operating system image obtained from a component separate from the grid node, wherein the operating system image comprises the grid facilitation agent.

7. (Original) The method of claim 6, wherein determining the set of grid nodes comprises:

determining to which of the plurality of nodes the grid establishment component has access to a privileged port; and

selecting those nodes as the grid nodes.

8. (Previously presented) The method of claim 4, wherein causing the grid node to execute a grid facilitation agent thereon comprises:

deploying a grid facilitation agent to an operating system running on the grid node; and

instructing the operating system to run the grid facilitation agent on the grid node.

9. (Original) The method of claim 8, wherein each of the plurality of node has an operating system running thereon, and wherein determining the set of grid nodes comprises:

determining, for each of the plurality of nodes, whether the grid establishment component has sufficient privileged access to the operating system running on that node to deploy the grid facilitation agent to that operating system; and

in response to a determination that the grid establishment component has sufficient privileged access to that operating system, selecting that node as one of the grid nodes.

10. (Original) The method of claim 1, wherein determining comprises:

receiving a set of information from an administrator that specifies the set of grid nodes.

11. (Original) The method of claim 1, wherein establishing the resource grid is implemented by the grid establishment component without user intervention.

12. (Original) The method of claim 1, wherein establishing one or more grid masters comprises:

establishing the grid establishment component as a grid master.

13. (Original) The method of claim 1, wherein establishing one or more grid masters comprises:

establishing at least one of the grid nodes as a grid master.

14. (Previously presented) An apparatus communicatively coupled to a plurality of nodes, the apparatus comprising:

a mechanism for determining, from the plurality of nodes, a set of grid nodes to include in a resource grid, wherein each grid node provides zero or more resources, and wherein each grid node has a grid facilitation agent operating thereon; and

a mechanism for establishing the resource grid, wherein the mechanism for establishing the resource grid comprises:

a mechanism for configuring each grid node to enable that grid node to participate as part of the resource grid, wherein the mechanism for configuring each grid node comprises:

a mechanism for deploying a grid participation module to the grid facilitation agent operating on the grid node, and

a mechanism for instructing the grid facilitation agent to run the grid participation module on the grid node to enable to grid node to participate as part of the resource grid; and

a mechanism for establishing one or more grid masters to manage access to the resources provided by the grid nodes, such that the resource grid formed by the grid nodes behaves as a single pool of resources accessible through the one or more grid masters.

15. Canceled

16. (Previously presented) The apparatus of claim 14, wherein the mechanism for determining the set of grid nodes comprises:

a mechanism for determining which of the plurality of nodes has a grid facilitation agent operating thereon; and

a mechanism for selecting those nodes as the grid nodes.

17. (Previously presented) An apparatus, comprising:

a mechanism for determining, from a plurality of nodes, a set of grid nodes to include in a resource grid, wherein each grid node provides zero or more resources;

a mechanism for establishing the resource grid, wherein the mechanism for establishing the resource grid comprises:

a mechanism for configuring each grid node to enable that grid node to participate as part of the resource grid, wherein the mechanism for

configuring a grid node to enable that grid node to participate as part of the resource grid comprises:

a mechanism for causing the grid node to execute a grid facilitation agent thereon;

a mechanism for deploying a grid participation module to the grid facilitation agent executing on the grid node; and

a mechanism for instructing the grid facilitation agent to run the grid participation module on the grid node to enable the grid node to participate as part of the resource grid, and

a mechanism for establishing one or more grid masters to manage access to the resources provided by the grid nodes, such that the resource grid formed by the grid nodes behaves as a single pool of resources accessible through the one or more grid masters.

18. (Original) The apparatus of claim 17, wherein the mechanism for causing the grid node to execute the grid facilitation agent comprises:

a mechanism for causing the grid node to reboot using an operating system image obtained from a component separate from the grid node, wherein the operating system image comprises the grid facilitation agent.

19. (Original) The apparatus of claim 17, wherein the mechanism for causing the grid node to execute the grid facilitation agent comprises:

a mechanism for instructing the grid node, via a privileged port of the grid node, to reboot using an operating system image obtained from a component separate from the grid node, wherein the operating system image comprises the grid facilitation agent.

20. (Original) The apparatus of claim 19, wherein the mechanism for determining the set of grid nodes comprises:

a mechanism for determining to which of the plurality of nodes the grid establishment component has access to a privileged port; and

a mechanism for selecting those nodes as the grid nodes.

21. (Previously presented) The apparatus of claim 17, wherein the mechanism for causing the grid node to execute a grid facilitation agent thereon comprises:

a mechanism for deploying a grid facilitation agent to an operating system running on the grid node; and

a mechanism for instructing the operating system to run the grid facilitation agent on the grid node.

22. (Original) The apparatus of claim 21, wherein each of the plurality of node has an operating system running thereon, and wherein the mechanism for determining the set of grid nodes comprises:

a mechanism for determining, for each of the plurality of nodes, whether the grid establishment component has sufficient privileged access to the operating

system running on that node to deploy the grid facilitation agent to that operating system; and

a mechanism for selecting, in response to a determination that the grid establishment component has sufficient privileged access to that operating system, that node as one of the grid nodes.

23. (Original) The apparatus of claim 14, wherein the mechanism for determining comprises:

a mechanism for receiving a set of information from an administrator that specifies the set of grid nodes.

24. (Original) The apparatus of claim 14, wherein the apparatus establishes the resource grid without user intervention.

25. (Original) The apparatus of claim 14, wherein the mechanism for establishing one or more grid masters comprises:

a mechanism for establishing a grid establishment component as a grid master.

26. (Original) The apparatus of claim 14, wherein the mechanism for establishing one or more grid masters comprises:

a mechanism for establishing at least one of the grid nodes as a grid master.

27. (Previously presented) In a system comprising a plurality of nodes, a computer readable medium, comprising:

instructions for causing one or more processors to determine, from the plurality of nodes, a set of grid nodes to include in a resource grid, wherein each grid node provides zero or more resources, and wherein each grid node has a grid facilitation agent operating thereon; and

instructions for causing one or more processors to establish the resource grid, wherein the instructions for causing one or more processors to establish comprises:

instructions for causing one or more processors to configure each grid node to enable that grid node to participate as part of the resource grid, wherein the instructions for causing one or more processors to configure each grid node to enable that grid node to participate as part of the resource grid comprises:

deploying a grid participation module to the grid facilitation agent operating on the grid node, and

instructing the grid facilitation agent to run the grid participation module on the grid node to enable the grid node to participate as part of the resource grid; and

instructions for causing one or more processors to establish one or more grid masters to manage access to the resources provided by the grid nodes, such that the resource grid formed by the grid nodes behaves as a single pool of resources accessible through the one or more grid masters.

28. Canceled

29. (Previously presented) The computer readable medium of claim 27, wherein the instructions for causing one or more processors to determine the set of grid nodes comprises:

instructions for causing one or more processors to determine which of the plurality of nodes has a grid facilitation agent operating thereon; and

instructions for causing one or more processors to select those nodes as the grid nodes.

30. (Previously presented) In a system comprising a plurality of nodes, a computer readable medium, comprising:

instructions for causing one or more processors to determine, from the plurality of nodes, a set of grid nodes to include in a resource grid, wherein each grid node provides zero or more resources;

instructions for causing one or more processors to establish the resource grid, wherein the instructions for causing one or more processors to establish comprises:

instructions for causing one or more processors to configure each grid node to enable that grid node to participate as part of the resource grid, wherein the instructions for causing one or more processors to configure a grid node to enable that grid node to participate as part of the resource grid comprises:

instructions for causing one or more processors to cause the grid node to execute a grid facilitation agent thereon;

instructions for causing one or more processors to deploy a grid participation module to the grid facilitation agent executing on the grid node; and

instructions for causing one or more processors to instruct the grid facilitation agent to run the grid participation module on the grid node to enable the grid node to participate as part of the resource grid, and

instructions for causing one or more processors to establish one or more grid masters to manage access to the resources provided by the grid nodes, such that the resource grid formed by the grid nodes behaves as a single pool of resources accessible through the one or more grid masters.

31. (Original) The computer readable medium of claim 30, wherein the instructions for causing one or more processors to cause the grid node to execute the grid facilitation agent comprises:

instructions for causing one or more processors to cause the grid node to reboot using an operating system image obtained from a component separate from the grid node, wherein the operating system image comprises the grid facilitation agent.

32. (Original) The computer readable medium of claim 30, wherein the instructions for causing one or more processors to cause the grid node to execute the grid facilitation agent comprises:

instructions for causing one or more processors to instruct the grid node, via a privileged port of the grid node, to reboot using an operating system image obtained from a component separate from the grid node, wherein the operating system image comprises the grid facilitation agent.

33. (Original) The computer readable medium of claim 32, wherein the instructions for causing one or more processors to determine the set of grid nodes comprises:

instructions for causing one or more processors to determine to which of the plurality of nodes the grid establishment component has access to a privileged port; and

instructions for causing one or more processors to select those nodes as the grid nodes.

34. (Previously presented) The computer readable medium of claim 30, wherein the instructions for causing one or more processors to execute a grid facilitation agent thereon comprises:

instructions for causing one or more processors to deploy a grid facilitation agent to an operating system running on the grid node; and

instructions for causing one or more processors to instruct the operating system to run the grid facilitation agent on the grid node.

35. (Original) The computer readable medium of claim 34, wherein each of the plurality of node has an operating system running thereon, and wherein the instructions for causing one or more processors to determine the set of grid nodes comprises:

instructions for causing one or more processors to determine, for each of the plurality of nodes, whether the grid establishment component has sufficient privileged access to the operating system running on that node to deploy the grid facilitation agent to that operating system; and

instructions for causing one or more processors to select, in response to a determination that the grid establishment component has sufficient privileged access to that operating system, that node as one of the grid nodes.

36. (Original) The computer readable medium of claim 27, wherein the instructions for causing one or more processors to determine comprises:

instructions for causing one or more processors to receive a set of information from an administrator that specifies the set of grid nodes.

37. (Original) The computer readable medium of claim 27, wherein the instructions for causing one or more processors to establish the resource grid causes the one or more processors to establish the resource grid without user intervention.

38. (Original) The computer readable medium of claim 27, wherein the instructions for causing one or more processors to establish one or more grid masters comprises:

instructions for causing one or more processors to establish a grid establishment component as a grid master.

39. (Original) The computer readable medium of claim 27, wherein the instructions for causing one or more processors to establish one or more grid masters comprises:

instructions for causing one or more processors to establish at least one of the grid nodes as a grid master.